Milwaukee
Water Works

Safe, Abundant Drinking Water.

2013 Water Quality Report (EPA-required Consumer Confidence Report)

This report is for you

The U.S. Environmental Protection Agency (EPA) requires drinking water utilities to provide an annual Consumer Confidence Report, or Water Quality Report.

This is our opportunity to inform you about the source and high quality of your drinking water, compliance and detected contaminants, and other information reflecting results from treating and monitoring water Jan. 1 – Dec. 31, 2013.

The Milwaukee Water Works is committed to ensuring your water quality, reliability, and security. We encourage you to learn the facts and be confident in your Milwaukee water.

Notice

Important Information

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

Informacion Importante para nuestros clientes que hablan español

Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

Lug tseem ceeb rua cov siv dlej kws has lug Moob

Ntawm nuav yog cov lug tseem ceeb qha txug kev haus dlej nyob nroog Milwaukee. Yog mej nyeem tsi tau cov lug nuav, thov lwm tug txhais rua mej.

Publicly Owned

A public water utility belongs to all of us. Water rates, not taxes, pay the cost to purify and pump the water and keep infrastructure in reliable working condition. As a non-profit agency, we continuously reinvest revenue from rates in our utility. Established in 1871 and owned by the City of Milwaukee, the Milwaukee Water Works is proud to be the largest and oldest continuously operating water utility in Wisconsin.

We provide water service to over 860,000 people in an area of 196 square miles in Milwaukee, Brown Deer, Butler, Franklin, Greendale, Greenfield, Hales Corners, Menomonee Falls, Mequon, New Berlin, Shorewood, St. Francis, Thiensville, Wauwatosa, West Allis, West Milwaukee, and to the Milwaukee County Grounds.

The Milwaukee Water Cycle

Milwaukee's water source is freshwater Lake Michigan. After we purify the water, we pump it into the distribution system of water mains to your service line pipe, and through the water meter into your home. After you use water, it leaves your home through the sanitary sewer pipe and flows to the Milwaukee Metropolitan Sewerage District treatment facility where it is treated and returned to Lake Michigan.

Of all the choices of water available to you, only one must meet all standards of the Safe Drinking Water Act: your tap water.

What's in the water?
As water flows through rivers and lakes and over land surfaces, naturally occurring substances may be dissolved in the water that reaches Lake Michigan. We call these substances contaminants. Surface water sources may be highly susceptible to contaminants. Surface water is also affected by animal and human activities. Read the Department of Natural Resources (DNR) Source Water Assessment for Milwaukee at milwaukee.gov/water/about/WaterQuality.htm.

Contaminants that may be present in source water include microbial contaminants such as viruses, protozoa and bacteria; inorganic contaminants such as salts and metals; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants.

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. Learn more about contaminants and potential health effects by calling the EPA Safe Drinking Water Hotline, 1-800-426-4791. Find a table of contaminants detected by the Milwaukee Water Works on page four of this report.

Pure and Wholesome Our water purification process ensures you can trust pure, safe Milwaukee water for drinking, cooking, bathing – everything! Fresh, clean water protects you from waterborne illness.

Since 1993, the Milwaukee Water Works has invested over $417 million in its infrastructure -- treatment plants, pumps, water mains, booster stations -- to ensure a reliable supply of pure, fresh water.

Tap water meets health-based standards
Federal and state drinking water standards are set after extensive review of the best-available science and public health needs. Water provided by the Milwaukee Water Works meets or surpasses all standards. However, technological advances may change how both the media and customers define or perceive water quality. For example, scientists now can detect contaminants in as little as parts per trillion – equal to a few drops of water in 20 Olympic-size swimming pools. Decades ago, this wasn't possible. At low levels, these contaminants generally are not harmful in drinking water. Removing all contaminants simply because they are detected would be extremely costly, and in most cases, would not provide increased protection of public health. Therefore, we support water research by the EPA, the Water Research Foundation, and other agencies. We also have been recognized by the EPA for our collaboration with health agencies to track and respond to public health issues related to water.

Water Treatment and Quality Monitoring for Your Health

We continuously conduct water quality monitoring, or sampling, from the lake source water to the distribution system of 1,956 miles of water mains that carry over 100 million gallons of treated water every day.

Milwaukee benefits from the fact that our source water, Lake Michigan, is a relatively clean source. We treat Lake Michigan water with ozone as the primary disinfectant. This highly reactive gas destroys illness-causing micro-organisms and harmful compounds, removes taste and odor compounds, and reduces the formation of disinfection byproducts. Particles are removed through coagulation, flocculation, settling, and biologically active filtration. Chlorine is added as a secondary disinfectant. Fluoride is added to reduce dental cavities. A phosphorous compound is added to control pipe corrosion to prevent lead and copper that may be present in pipes from leaching into the water. Finally, chloramine disinfection maintains a residual in the distribution system to protect against bacterial contamination. The Supervisory Control and Data Acquisition System (SCADA) at both treatment plants provides real-time data from chemical feed

systems, including ozone, and all water quality monitoring as well as control of water pumping stations and the distribution system. Pure, fresh water arrives at your taps.

Water quality monitoring and screening activities look for organisms and contaminants not yet regulated but considered of emerging concern. We test source and treated water for over 500 contaminants while the EPA requires tests for only 91. We go above and beyond what is required:

- As a precaution to ensure safe water
- To collect baseline data for study
- To help increase the understanding of how contaminants may affect public health
- To meet future regulations.

The expense of testing for unregulated compounds provides our customers with added assurance and confidence in Milwaukee water quality and service.

Health Precautions

Some people may be more vulnerable to contaminants in drinking water than the general population. These people can be particularly at risk from infections:

- people with compromised immune systems
- those with cancer undergoing chemotherapy
- people who have undergone organ transplants
- those with HIV/AIDS or other immune system disorders
- some elderly
- infants

These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline, 1-800-426-4791, and the CDC at cdc.gov/parasites/crypto.

Cryptosporidium

Cryptosporidium is a microscopic protozoan that when ingested, can result in diarrhea, fever, and other gastrointestinal symptoms. In collaboration with the Milwaukee Health Department, we consider *Cryptosporidium* detection a priority, and since 1993, we have continued to test source and treated water for *Cryptosporidium*. The organism is found in many surface water sources (lakes, rivers, streams) and comes from human and animal wastes in the watershed. The risk of *Cryptosporidium* from drinking water in Milwaukee has been reduced to extremely low levels by an effective treatment combination including ozone disinfection, coagulation, sedimentation, biologically active filtration, and chloramine disinfection. *Cryptosporidium* was not detected in any 2013 source water samples.

We have prepared a brochure based on EPA and CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium.* Obtain a copy from our Customer Service Center, (414) 286-2830, or at milwaukee.gov/water/about/WaterQuality.htm; scroll down to Resource Links, choose Information for Persons with High Risk Immune Systems.

About Lead and Copper

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Milwaukee Water Works is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the EPA Safe Drinking Water Hotline, 1-800-426-4791 or at epa.gov/safewater/lead.

Notice to Parents of Infants Six Months of Age or Younger

According to the CDC, the proper amount of fluoride from infancy throughout life at all ages helps prevent and control tooth decay (cavities). Therefore, the Milwaukee Water Works, following public health recommendations, maintains a level of fluoride in our drinking water that is both safe and effective. Per Common Council File No. 120187 adopted on July 24, 2012, we are required to post the following advisory regarding fluoride and young infants:

The American Academy of Pediatrics recommends exclusive breastfeeding for the first six months of a child's life, followed by continued breastfeeding as complementary foods are introduced, for optimal short- and long-term health advantages. Go to <http://pediatrics.aappublications.org/content/129/3/e827.full> for more information.

As of Aug. 31, 2012, Milwaukee water is fluoridated at a level not to exceed 0.7 mg/L. According to the CDC, for infants up to six months of age, if tap water is fluoridated or has substantial natural fluoride (0.7 mg/L or higher) and is being used to dilute infant formula, a parent may consider using a low-fluoride alternative water source. Bottled water known to be low in fluoride is labeled as purified, deionized, demineralized, distilled, or prepared by reverse osmosis. Ready-to-feed (no-mix) infant formula typically has little fluoride and may be preferable at least some of the time.

If breastfeeding is not possible, parents should consult a pediatrician about an appropriate infant formula option. Parents should be aware that there may be an increased chance of mild dental fluorosis if the child is exclusively consuming infant formula reconstituted with fluoridated water. Dental fluorosis is a term that covers a range of visible changes to the enamel surface of the tooth. Go to <http://www.cdc.gov/fluoridation/safety/infant_formula.htm> for more information on dental fluorosis and the use of fluoridated drinking water in infant formula.

Contact Us

Milwaukee Water Works Customer Service Center 841 N. Broadway, Room 409 Milwaukee, Wisconsin 53202
Open Monday-Friday, 7:30 a.m. to 5:00 p.m.
Phone: (414) 286-2830 TDD: (414) 286-8801 Fax: (414) 286-5452
24-Hour Water Control Center: (414) 286-3710
Email for non-emergency contact: watwebcs@milwaukee.gov
Visit milwaukee.gov/water.

Para una explicación en español, por favor llame al (414) 286-2830.

Participate in decisions that affect drinking water quality at meetings of the Public Works Committee (9:00 a.m., the first Wednesday of each month, Room 301B City Hall, 200 E. Wells, Milwaukee, WI 53202) and the Common Council (meeting dates vary; contact City Clerk for schedule, (414) 286-2221, or visit www.milwaukee.gov).

Milwaukee Water Works' water quality, operations, and rates are regulated by the Public Service Commission of Wisconsin, the U.S. Environmental Protection Agency, and the Wisconsin Department of Natural Resources.
The Milwaukee Water Works is a member of the American Water Works Association, the Association of Metropolitan Water Agencies, the Water Research Foundation, the Wisconsin Water Association, Milwaukee Food and Beverage (FaB), and the Water Council.

Use Water Wisely – Save Water, Money, and Energy Water leaks in homes and businesses are the responsibility of the property owner. Sewer charges are based on the amount of water that passes through your water meter, whether you used the water or it leaked and was wasted.

Contaminants Detected in Treated Drinking Water in 2013

No contaminants were detected at levels that violated federal drinking water standards.

The Milwaukee Water Works has an extensive, acclaimed water quality monitoring program, testing for over 500 contaminants, only 26 of which were detected in treated water in 2013. Those detected were below levels allowed by state and federal laws or are not at all regulated, as shown in the table below.

A list of the hundreds of other compounds tested for but not detected can be found at www.milwaukee.gov/water/about/WaterQuality.htm. Scroll down to Resource Links, choose 2013 Undetected Chemical Contaminants.

Substance	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Median of the Detected Values	Maximum Value	Source(s) of Contaminant	Meets Standard
Aluminum	0.2 mg/L	NR	0.041 mg/L	0.121 mg/L	Water treatment additive, natural deposits	NR
Barium	2 mg/L	2 mg/L	0.02 mg/L	0.02mg/L	Natural deposits	✓
Bromate	10 µg/L	10 µg/L (RAA)	< 5 µg/L (RAA)	7.3 µg/L	Byproduct of drinking water disinfection	✓
Chlorate	NA	NR	60 µg/L	100 µg/L	Byproduct of drinking water disinfection	NR
Chlorine, total	4 mg/L	4 mg/L	1.61 mg/L	2.01 mg/L	Residual of drinking water disinfection	✓
Chloride	250 mg/L	NR	15.7 mg/L	18.9 mg/L	Natural deposits, road salt	NR
Chromium, Hexavalent	NA	NR	0.2 µg/L	0.25 µg/L	Natural deposits, manufacturing	NR
Chromium, total	NA	100 µg/L	0.3 µg/L	0.3 µg/L	Natural deposits, manufacturing	✓
Copper*	1.3 mg/L	1.3 mg/L (AL)	0.034 mg/L (AL)	NR	Corrosion of household plumbing	✓
Fluoride	4 mg/L	4 mg/L	0.58 mg/L	0.68 mg/L	Water treatment additive, natural deposits	✓
Gross Alpha particles*	Zero	15 pCi/L	2.7 pCi/L	2.8 pCi/L	Natural deposits	✓

Gross Beta particles*	Zero	50 pCi/L	5.3 pCi/L	6.0 pCi/L	Natural deposits	✓
Haloacetic Acids, total	NA	60 µg/L	5.1 µg/L	9.3 µg/L	Byproduct of drinking water disinfection	✓
Iron	0.30 mg/L	NR	0.006 mg/L	0.020 mg/L	Natural deposits	NR
Lead*	Zero	15 µg/L (AL)	6 µg/L (AL)	NR	Corrosion of household plumbing	✓
Manganese	50 µg/L	NR	< 0.5 µg/L	0.7 µg/L	Natural deposits	✓
Molybdenum	NA	NR	1.0 µg/L	1.1 µg/L	Natural deposits	NR
Nitrate	10.0 mg/L	10.0 mg/L	0.25 mg/L	0.30 mg/L	Natural deposits, farm runoff	✓
Radium 226 + 228 combined*	Zero	5 pCi/L	1.98 pCi/L	1.99 pCi/L	Natural deposits	✓
Strontium	NA	NR	120 µg/L	120 µg/L	Natural deposits	NR
Sulfate	500 mg/L	NR	26 mg/L	27 mg/L	Natural deposits	NR
Trihalomethanes, total	NA	80 µg/L	9.3 µg/L	21 µg/L	Byproduct of drinking water disinfection	✓
Total Dissolved Solids	500 mg/L	NR	179 mg/L	187 mg/L	Natural deposits	NR
Turbidity	NA	<0.3 NTU 95% of the time	0.04 NTU 95% of the time	0.22 NTU 1-day max	Natural deposits	✓
Uranium, total*	Zero	30 µg/L	0.23 µg/L	0.25 µg/L	Natural deposits	✓
Vanadium	NA	NR	0.3 µg/L	0.3 µg/L	Natural deposits	NR

*Data from 2011, the most recent required sampling date

Definitions

<	"less than" or not detected
AL	Action Level: the concentration of a contaminant that when exceeded, triggers treatment or other requirement that a water system must follow. Action Levels are reported at the 90th percentile for homes at greatest risk.

Haloacetic Acids	Mono-, di-, and tri-chloroacetic acid; mono-, di-, and tri-bromoacetic acid; bromochloroacetic acid, dibromochloroacetic acid; and bromodichloroacetic acid
Median	The middle value of the entire data set for the parameter (range from high to low)
µg/L	Microgram per Liter, or parts per billion
MCL	Maximum Contaminant Level: the highest level allowed by regulation
MCLG	Maximum Contaminant Level Goal: the ideal goal for public health
mg/L	Milligram per Liter, or parts per million
NA	Not Applicable
NR	Not Regulated
NTU	Nephelometric Turbidity Unit: unit to measure turbidity
pCi/L	Picocuries per Liter: a measure of radioactivity. A picocurie is 10^{-12} curies.
RAA	Running Annual Average: the average of four quarterly samples collected in one year
TT	Treatment Technique: a required process intended to reduce the level of a contaminant in drinking water
Trihalomethanes	Chloroform, bromodichloromethane, dibromochloromethane, and bromoform

Turbidity	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.